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Professor Marsh, namely, that they were produced by a gigantic edentate ; but no edentate bones have as yet been recognized in the fossils of the locality.

Prof. MASON then inquired whether the Secretary had not entertained the belief that the impressions were human, as an article in the *Revue d'Anthropologie*, professing to quote Dr. Hoffman, stated them to be those of Tertiary man.

The Secretary replied that the paper which had been presented last autumn, immediately after his return from Carson, contained no such statement, but called attention to the striking similarity between the fossil impressions and those of the ordinary imprint of a foot incased in a moccasin or shod with a sandal. The error in the *Revue* was made after the paper left the author's hands. The Secretary remarked further that a cast of a typical impression had been on exhibition before the Society during the evening on which that paper was read, and every feature was characteristic of a human foot, though the belief was not entertained that primitive man had produced it. Some of the impressions at Carson are over six inches in depth, and yet in none of them is there any appearance that might suggest the presence of claws, such as would naturally exist in animals of the sloth family. Neither was there any evidence of an oblique indentation caused by the outer edge of the foot being put down first, as we find the sloths walk ; a habit which no doubt existed to some extent in the fossil forms.

SIXTY-SEVENTH REGULAR MEETING, March 20th, 1883.

Colonel GARRICK MALLERY, the President, occupied the Chair.

The Council reported, through its Secretary, the following names of foreign anthropologists who had been duly elected Honorary Members. The list, as read by Professor Mason, is as follows :

ANOUTCHINE, DEMETRI, Moscow, Russia.

BEDDOE, Dr. JOHN, Bristol, England.

BASTIAN, Prof. ADOLF, Berlin, Prussia.

BUSK, Prof. GEORGE, London, England.

CAPELLINI, Prof. G., Bologna, Italy.

CARTAILHAC, EMILE, Toulouse, France.

CHANTRE, ERNEST, Lyons, France.

- ENGELHARDT, C., Copenhagen, Denmark.
 EVANS, JOHN, London, England.
 FISHER, Prof. H., Freiburg, Baden.
 FISON, Rev. LORIMER, Navuloa, Fiji Islands.
 FLOWER, Prof. WILLIAM H., London, England.
 HAECKEL, Prof. ERNST, Jena, Germany.
 HIS, Prof. W., Leipzig, Germany.
 HOVELACQUE, Prof. ABEL, Paris, France.
 HUXLEY, Prof. THOMAS H., London, England.
 ICAZBALCETA, Señor JOAQUIM GARCIA, Mexico, Mexico.
 LUBBOCK, Sir JOHN, London, England.
 MANTEGAZZA, Prof. PAULO, Florence, Italy.
 MAINE, Sir HENRY S., London, England.
 MEYER, Dr. A. B., Leipzig, Germany.
 MORTILLET, Prof. GABRIEL DE, Paris, France.
 MUCH, Prof. M., Vienna, Austria.
 MULLER, Prof. FREDERICK, Vienna, Austria.
 NILLSON, Prof. SVEN, Lund, Sweden.
 PITT-RIVERS, Maj. Gen., London, England.
 POZZI, Dr. SAMUEL, Paris, France.
 QUATREFAGES, Prof. A. DE, Paris, France.
 RETZIUS, Prof. GUSTAV, Stockholm, Sweden.
 SAYCE, Prof. A. H., Oxford, England.
 SCHAFFHAUSEN, Prof. H., Bonn, Germany.
 SCHMIDT, Dr. EMIL, Essen, Prussia.
 SCHMIDT, Prof. WALDEMAR, Copenhagen, Denmark.
 STEENSTRUP, Prof. JAPETUS, Copenhagen, Denmark.
 TOPINARD, Dr. PAUL, Paris, France.
 TYLOR, EDWARD B., London, England.
 VIRCHOW, Prof. RUDOLPH, Berlin, Germany.
 VOGT, Prof. CARL, Geneva, Switzerland.
 WORSAAE, J. J. A., Copenhagen, Denmark.

In the absence of the Curator, the Secretary made the following report of gifts received since the previous meeting:

- From Major J. W. POWELL.—The First Annual Report of the Bureau of Ethnology, Washington, D. C., 1881.
 From ARNI THORSTEINSON.—Árbók hins Islenszka Fornleifafélags, 1880, 1881, 1882.
 From J. H. RIVETT-CARNAC.—Four polished celts of diorite, of normal type, showing gradations in size; one ringstone, or

“macehead;” one cast of a grooved stone hammer; one chipped celt of basalt, and a collection of cores, spalls, and flakes. All collected in the Banda District, Northwestern Provinces, India.

The President then stated that through the courtesy of the Surgeon General of the Army, rooms for the future meetings of the Society had been secured in the Army Medical Museum. He congratulated the members upon the very pleasant quarters in which they were hereafter to meet.

MR. W. H. HOLMES read the following paper on “ART IN SHELL,” which was illustrated with both specimens and sketches:

Attention has been but recently called to the fact that shells and shell material have held a very important place in the arts of the ancient peoples of this country.* Unworked shells have been employed in a variety of ways, according to their adaptability to the wants of man. They have also been artificially shaped, after the fashion of other materials, to add to their convenience as implements, utensils, and weapons. Their chief interest, however, lies in the special uses to which they have been applied. I refer to their employment by the primitive engraver as tablets on which to depict a variety of graphic conceptions. These tablets are generally disk-like in form and are pierced near the margin for suspension about the neck. As a rule, they are cut from the most expanded portions of large marine univalves, notably the *Busycon perversum*.

The concave outer surface is seldom used; but the interior, which is by nature beautifully polished, has received the engraved design.

There are also many pendants with plain surfaces which may have had particular significance to their possessors, as insignia, amulets, or symbols, or may have received painted designs of such a character as to give significance to them. But we find that many of the larger gorgets obtained from mounds and graves of a large district have engraved upon them designs of a most interesting nature, which are so remarkable in conception and execution as to command our admiration. Such is the character of these designs that we are at once impressed with the idea that they are not products of the idle fancy. I have given much time to their examination,

* Art in Shell. Second Annual Report of the Bureau of Ethnology. In press.

and, day by day, have become more strongly impressed with the belief that no single design is without its significance; and that their production was a serious art, which dealt with matters closely interwoven with the history, mythology, and polity of a people gradually developing a civilization of their own.

Although these objects were worn as personal ornaments, they probably had specialized uses as insignia, amulets, or symbols.

As *insignia*, they were badges of office or distinction. The devices engraved upon them were derived from many sources, and were probably sometimes supplemented by numeral records representing enemies killed, prisoners taken, or other deeds accomplished.

As *amulets*, they were invested with protective or remedial attributes, and contained mystic devices derived from dreams, visions, and many other sources.

As *symbols*, they possessed, in most cases, a religious character, and were generally used as *totems* of clans. They were inscribed with characters derived chiefly from mythologic sources. A few examples contain geometric designs which may have been *time-symbols*.

That these objects should be classed under one of these heads and not as simple ornaments engraved with intricate designs for embellishment alone, is apparent when we consider the serious character of the work, the great amount of labor and patience shown, the frequent recurrence of the same design, the wide distribution of particular forms, the preservation of the idea in all cases, no matter what shortcomings occur in execution or detail, and the apparent absence of all lines, dots, and figures not essential to the presentation of the conception.

In describing these gorgets I have arranged them in groups distinguished by the designs engraved upon them. They are presented in the following order:

The Cross,
The Scalloped Disk,
The Bird,
The Spider,
The Serpent,
The Human Face,
The Human Figure.

Within the United States ancient tablets containing engraved

designs are apparently confined to the Atlantic slope, and are not found to any extent beyond the limits of the district occupied by the stone-grave people. Early explorers along the Atlantic coast mention the use of engraved gorgets by a number of tribes. Modern examples may be found occasionally among the Indians of the northwest coast as well as upon the islands of the central Pacific.

The symbol of the cross, which occurs in various forms in the art of the mound builder, is first in order, but, as my subject is extremely large, I shall omit its consideration for the present.

Scalloped Disks.—In making a hasty classification of the many engraved gorgets I have found it convenient to place in one group a numerous and somewhat extraordinary class of designs which have been engraved upon scalloped disks. Like the cross, the symbol here represented is one that cannot with certainty be referred to an original. The general shape of the disks is such as to suggest to most minds a likeness to the sun, the scallops being suggestive of the rays. As this orb is known to be an object of first importance in the economy of life—the source of light and heat—it is naturally an object of veneration among many primitive peoples. It is well known that the barbarian tribes of Mexico and South America had well-developed systems of sun-worship, and that they employed symbols of many forms, some of which still retained a likeness to the original, while others had assumed the garb of animals or fanciful creatures. These facts being known, it seems natural that such a symbol as the one under consideration should be referred to the great original which it suggests.

The well-known fact that the district from which these gorgets come was, at the time of discovery by the whites, inhabited by a race of sun-worshippers—the Natchez—gives to this assumption a shadow of confirmation. So far as I am aware, however, no one has ventured a positive opinion in regard to their significance, but such suggestions as have been made incline toward the view indicated. I feel the great necessity of caution in such matters, and, while combatting the idea that the designs are ornamental or fanciful only, I am far from attributing to them any deeply mysterious significance. They may in some way or other indicate political or religious station, or they may even be cosmogenic, but the probabilities are much greater that they are time symbols. Before venturing further, however, it will be well to describe one of these disks. I have examined upwards of thirty of these, the majority of which

are made of shell; a typical example is presented in Fig. 1. This specimen was obtained from a mound near Nashville, Tenn., by Prof. Powell. It was found near the head of a skeleton, which was much decayed, and had been so disturbed by recent movements of

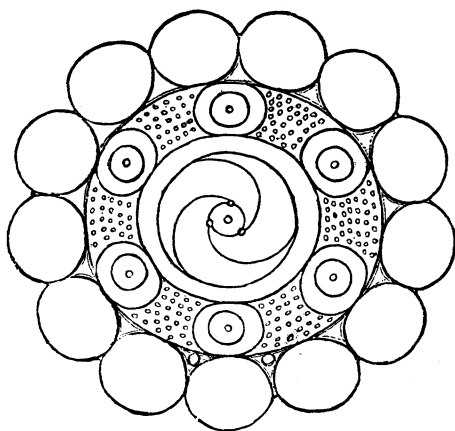


FIG. 1.

Shell disk from a mound at Nashville, Tennessee.

the soil as to render it difficult to determine its original position. The shell used is apparently a large specimen of the *Busycon per-versum*, although the lines of growth are not sufficiently well preserved to make a positive determination of the species. The substance of the shell is well preserved; the surface was once highly polished, but is now pitted and discolored by age. The design is engraved on the concave surface as usual, and the lines are accurately drawn and clearly cut. The various concentric circles are drawn with almost geometric accuracy around a minute shallow pit as a center. These circles divide the surface into five parts—a small circle at the center being surrounded by four zones of unequal width. The central circle is three-eighths of an inch in diameter, and is surrounded by a zone one-half an inch in width, which contains a rosette of three involuted lines; these begin on the circumference of the inner circle in three small equidistant perforations, and sweep outward to the second circle, making upwards of half a revolution. These lines are somewhat wider and more deeply engraved than the other lines of the design. In many specimens

they are so deeply cut in the middle part of the curve as to penetrate the disk, producing crescent-shaped perforations. The second zone is one-fourth of an inch in width, and in this, as in all other specimens, is quite plain. The third zone is one-half an inch in width, and exhibits some very interesting features. We find placed at almost equal intervals six circular figures, each of which incloses a circlet and a small central pit. The spaces between the circular figures are thickly dotted with minute conical pits somewhat irregularly placed; the number of dots in each space varies from thirty-six to forty, making nearly two hundred and thirty in all.

The outer zone is subdivided into thirteen compartments, in each of which a nearly circular figure or boss has been carved, the outer edges of which form the scalloped outline of the gorget. Two medium sized perforations for suspension have been made near the inner margin of one of the bosses and next to the dotted zone; these show slight indications of abrasion by the cord of suspension. These perforations, as well as the three near the center, have been bored mainly from the convex side of the disk.

Whatever may be the meaning of this design, we cannot fail to recognize the important fact that it is significant,—that an idea is expressed. Were the design ornamental, we should expect variation in the parts or details of different specimens resulting from difference of taste in the designers; if simply copied from an original example for sale or trade, we might expect a certain number of exact reproductions: but in such a case, when variations did occur, they would hardly be found to follow uniform or fixed lines; there would also be variation in the relation of the parts of the conception as well as in the number of particular parts; the zones would not follow each other in exactly the same order; particular figures would not be confined to particular zones; the rays of the volute would not always have a sinistral turn, or the form of the tablet be always circular and scalloped. It cannot be supposed that, of the whole number of these objects at one time in use, more than a small number have been rescued from decay; and these have been obtained from widely scattered localities, and doubtless represent centuries of time, yet no variants appear which indicate a leading up to or a divergence from the one original central idea. A design of purely ornamental character, even if executed by the same hand, could not, in the nature of things, exhibit the uniformity in variation here shown. Fancy, unfettered by ideas of a fixed nature,

such as those pertaining to religious or sociologic customs, would vary with the locality, the day, the year, or the life.

The student will hardly fail to notice the resemblance of these disks to the calendars or time symbols of Mexico and other southern nations of antiquity. There is, however, no absolute identity with southern examples. The involute design in the center resembles the Aztec symbol of day, but is peculiar in its division into three parts, four being the number almost universally used. The only division into three that I have noticed occurs in the calendar of the Muyscas, in which three days constitute a week. The circlets and bosses of the outer zones give them a pretty close resemblance to the month and year zones of the southern calendars.

My suggestion that these objects may be calendar disks will not seem unreasonable, when we remember that time symbols do make their appearance with many nations during the early stages of barbarism. They are the result of attempts to fix accurately the divisions of time for the regulation of religious rites, and among the nations of the south constitute the great body of art. No well developed calendar is known among the wild tribes of North America, the highest achievements in this line consisting of simple pictographic symbols of the years; but there is no reason why the mound-builders should not have achieved a pretty accurate division of time resembling, in its main features, the systems of their southern neighbors.

The Bird.—With nearly all peoples the bird has been an important symbol. Possessing the mysterious power of flight, by means of which it could rise at pleasure into the realms of space, it naturally came to be associated with the phenomena of the sky,—the wind, the thunder, the lightning, and the rain. In the fervid imagination of the red man it became the actual ruler of the elements, the guardian of the four quarters of the heavens. As a result of this the bird is embodied in the philosophy of many tribes. The eagle, the swan, the woodpecker, the owl, and the dove were creatures of unusual consideration; their flight was noted as a matter of vital importance, as it served to indicate the future fortunes of the hunter and warrior.

The dove, with the Hurons, was thought to be the keeper of the souls of the dead, and the Navajos are said to believe that four white swans dwell in the four quarters of the heavens and rule the winds.

The storm-bird of the Dakotas dwells in the upper air, beyond the range of human vision, carrying upon its back a lake of fresh water; when it winks its eyes, there is lightning; when it flaps its wings, we hear the thunder; and when it shakes out its plumage, the rain descends. Myths like this abound in the lore of many peoples, and the story of the mysterious bird is interwoven with the traditions which tell of their origin. A creature which has sufficient power to guide and rule a race is constantly embodied in its songs, its art, and its philosophy. Thus, highly regarded by the modern tribes, it must have been equally an object of consideration among



FIG. 2.

Shell gorget from Mississippi.

prehistoric races. We know that the Natchez and the Creeks included the bird among their deities, and by the relics placed within their sepulchers we know that it held an important place in the esteem of the mound-builder.

One of the most interesting of all these ancient relics is the gorget presented in Fig. 2.

The design, which is clearly and symmetrically drawn, evinces a master hand. It would seem to embody one of those charming myths of the heavens, the sun, and the firmament, guarded by four mystic birds, the rulers of the winds. I am perfectly well aware that imaginative writing is not in keeping with scientific investigation, but when it is remembered that the myths of the American aborigines are highly poetical and abound in lofty rhetorical figures, there can be no good reason why their art should not echo these rhythmical passages of the imagination. For one, I have not the least doubt that the design in question embodies in its almost unintelligible symbols the chief features of a well-developed myth. To the thoughtful mind it will certainly be apparent that every line of this design is significant, not necessarily full of symbols of an occult nature; but, along with the songs and traditions of a departed race, this work had a place among the highest flights of their fancy, if not in the most important tenets of their philosophy. Yet, concerning these very works one writer has ventured the opinion that "they do but express the individual fancy of those by whom they were made;" that they are even without "indications of any intelligent design or pictographic idea." I do not assume to interpret these designs: they are not to be interpreted. Besides, there is no advantage to be gained by an interpretation. We have many myths and systems of belief within our easy reach that are as interesting and instructive as these could be. All I desire is to elevate these works from the category of trinkets to what I believe to be their rightful place, the serious art of a people with great capacity for loftier works. What the gorgets themselves were, or what particular value they had to their possessors, aside from simple ornament, must be, in a measure, a matter of conjecture. They were hardly less than the totems of clans, the insignia of rulers, or the potent charms of a priesthood. The design has in this case been engraved upon the convex side, the concave surface being plain. The perforations are placed near the margin, and are considerably worn by the cord of suspension. In the center is a nearly symmetrical cross, of the Greek type, in-

closed in a circle one and one-fourth inches in diameter. The spaces between the arms are emblazoned with groups of radiating lines. Placed at regular intervals on the outside of the circle are twelve pointed pyramidal rays ornamented with transverse lines. The whole design presents a remarkable combination of the two symbols—the cross and the sun. Surrounding this interesting symbol is another of a somewhat mysterious nature. A square framework of four continuous parallel lines symmetrically looped at the corners incloses the central symbol, the inner line touching the tips of the pyramidal rays. Outside of this again are the four symbolic birds placed against the sides of the square opposite the arms of the cross. These birds, or rather birds' heads, are carefully drawn after what, to the artist, must have been a well-recognized model. The mouth is open and the mandibles long, slender, and straight. The eye is represented by a circlet, which incloses a small conical pit intended to represent the iris; a striated and pointed crest springs from the back of the head and neck, and two lines extend from the eye, down the neck, to the base of the figure. In seeking an original for this bird, we find that it has perhaps more points of resemblance to the ivory-billed woodpecker than to any other species. It is not impossible, however, that the heron or swan may have been intended. That some particular bird served as a model is attested by the fact that other specimens from mounds in various parts of Tennessee exhibit similar designs. I have been able to find six of these specimens, all of which vary to some extent from the type described, but only in detail, workmanship, or finish.

The Serpent.—The serpent has had a fascination for primitive man hardly surpassed by its reputed power over the animals on which it preys. In the minds of nearly all savages it has been associated with the deepest mysteries and the most potent powers of nature. No other creature has figured so prominently in the religious systems of the world, few of which are free from it; and, as art in a great measure owes its existence to an attempt to represent or embellish objects which are supposed to be the incarnations of spirits, the serpent is an important element in all art. Wherever the children of nature have wandered, its image may be found engraved upon the rocks, or painted or sculptured upon monuments of their own construction. It is found in a thousand forms. Beginning with those so realistic that the species can be determined, we may pass down through innumerable stages of variation until all sem-

blance of nature is lost. So well is the serpent known as a religious symbol among the American peoples, that it seems hardly necessary to present illustrations of the curiously interesting myths relating to it. We are not surprised to find the bird, the wolf, or the bear placed among representatives of the "Great Spirit," and hence to find them embodied in art; but it would be a matter of surprise if the serpent were ever absent.

With the mound-builders it seems to have been of as much importance as to other divisions of the red race, ancient or modern. It is of very frequent occurrence among the designs engraved upon gorgets of shell, a multitude of which have been thus dedicated to the serpent-god.

It is a well-known fact that the rattlesnake is the species universally represented, and these engravings on shell present no exception to this rule. From a very early date in mound exploration these gorgets have been brought to light, but the coiled serpent engraved upon their concave surfaces is so highly conventionalized that it was not at once recognized. Professor Wyman appears to have been the first to point out the fact that the rattlesnake was represented; others have since made brief allusion to this fact. Two examples only have been illustrated: one by Professor Jones, who regards it as being without intelligent design, and the other by Dr. Rau, who does not suggest an interpretation. Among the thirty or forty specimens that I have examined the engraving of the serpent is placed, with one exception, upon the concave side of the disk, which, as usual, is cut from the most distended part of the *Busycon perversum*, or some similar shell. The great uniformity of these designs is a matter of much surprise. At the same time, however, there is no exact duplication: there are always differences in position, detail, or number of parts. The serpent is always coiled, the head occupying the center of the disk. With a very few exceptions the coil is sinistral. The head is so placed that when the gorget is suspended it has an erect position, the mouth opening toward the right hand.

It is a remarkable fact that two species appear to be represented, one being the common yellow rattlesnake (*Crotalus horridus*) of the Atlantic slope, the characteristic markings of which are alternating light and dark chevrons, Fig. 3; while the diamond rattlesnake (*Crotalus adamanteus*) of the Southern States, probably served as a model for the other group, Fig. 4.

As at first glance it will be somewhat difficult to make out clearly the figure of the serpent, even with the well-defined lines of the drawing before us, I will present the description pretty much in the order in which the design revealed itself to me in my first attempt to decipher it.

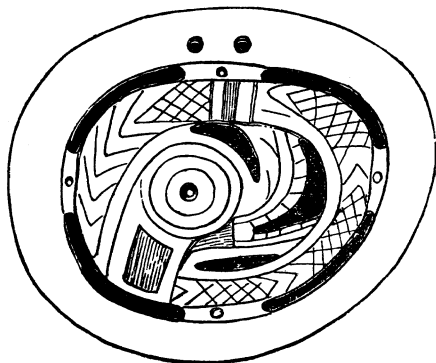


Fig. 3.

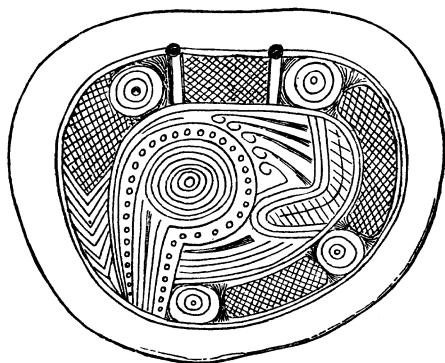


Fig. 4.

Shell gorgets with serpent design from a mound at Sevierville, Tennessee.

The saucer-like disks are almost circular, the upper edge being mostly somewhat straightened, the result of the natural limit of the body of the shell above. All are ground down to a fairly uniform thickness of from one-eighth to one-fourth of an inch. The edges are evenly rounded and smooth. Two small holes for suspension

occur near the rim of the straighter edge, and generally on or near the outline of the engraved design, which covers the middle portion of the plate. The diameter ranges from one to six inches.

To one who examines this design for the first time it seems a most inexplicable puzzle—a meaningless grouping of curved and straight lines, dots, and perforations. We soon notice, however, a remarkable similarity in the designs, the idea being radically the same in all specimens, and the conclusion is reached that there is nothing haphazard in the arrangement of the parts, and that every line must have its place and purpose. The design is in all cases inclosed by two parallel border lines, leaving a plain belt from one-fourth to three-fourths of an inch in width around the edge of the disk. All simple lines are firmly traced although somewhat "scratchy," and they are seldom more than one-twentieth of an inch in width or depth.

In studying the design, the attention is first attracted by an eye-like figure near the left border. This is formed of a series of concentric circles, the number of which varies from three in the most simple to twelve in the more elaborate forms. The diameter of the outer circle of this figure varies from half an inch to an inch. In the center there is generally a small conical pit. The series of circles is partially inclosed by a looped band one-eighth of an inch in width, which opens downward to the left, the free ends extending outward to the border line, gradually nearing each other, and forming a kind of neck to the circular figure. This band is in most cases occupied by a series of dots or conical depressions varying in number from two to thirty. The neck is decorated in a variety of ways: by dots, by straight and curved lines, and by a cross-hatching that gives a semblance of scales. A curious group of lines occupying a crescent shaped space at the right of the circular figure and inclosed by two border lines, must receive particular attention. This is really the front part of the head—the jaws and the muzzle of the creature represented. The mouth is always clearly defined and is mostly in profile, the upper jaw being turned abruptly upward; but, in some examples, an attempt has been made to represent a front view, in which case it presents a wide V-shaped figure. It is, in most cases, furnished with two rows of teeth, no attempt having been made to represent a tongue. The spaces above and below the jaws are filled with lines and figures which vary much in the different specimens; a group of plume-like figures extends back-

ward from the upper jaw to the crown, or otherwise this space is occupied by an elongated perforation. The body is represented as encircling the head in a single coil, which appears from beneath the neck on the right, passes around the front of the head, and terminates at the back in a pointed tail with well-defined rattles. It is engraved to represent the well-known scales and spots of the rattlesnake, the conventionalized figures being quite graphic.



Fig. 5.

Shell gorget with spider design from a mound in St. Clair county, Illinois.

The Spider.—Among insects the spider is best calculated to attract the attention of the savage. The curiously constructed houses of some varieties and the marvelous web of others must elicit the admiration of all beholders. It is certainly not strange that the spider appears in the myths of savages, yet it occurs but rarely in aboriginal art. Four examples engraved upon shell gorgets have come to my notice. The very fine specimen illustrated in Fig. 5 was obtained from a mound in St. Clair county, Illinois. It was found on the breast of a skeleton, and was very much discolored and quite fragile from decay; but no part of the design, which was engraved upon the concave side, has been obliterated. Near the margin and parallel with it three lines have been

engraved. The spider is drawn with considerable fidelity to nature, and covers nearly the entire disk—the legs, mandibles, and abdomen reaching the outer marginal line.

The thorax is placed in the center of the disk, and is represented by a circle, within which a cross has been engraved. The ends of the four arms have been enlarged on one side, producing a form much used in heraldry, but one very rarely met with in aboriginal American art. The head is somewhat heart-shaped, and is armed with palpi and mandibles, the latter being ornamented with a zigzag line and prolonged to the marginal lines of the disk. The eyes are represented by two small circles with central dots. The legs are correctly placed in four pairs upon the thorax, and are very graphically drawn. The abdomen is large and somewhat heart-shaped, and is ornamented with a number of lines and dots which represent the natural markings of the spider. The perforations for suspension are placed near the posterior extremity of the abdomen.

A gorget having a similar design was obtained from a mound on Fain's Island, Tennessee. The insect has been somewhat more highly conventionalized, but the general effect is very similar to that of the Illinois specimens.*

The Human Face.—A very important group of shell ornaments represent the human face more or less distinctly. By a combination of engraving and sculpture a rude resemblance to the features is produced. These objects are generally made from pear-shaped sections of the lower whorl of large marine univalves. The lower portion, which represents the neck and chin, is cut from the somewhat restricted part near the base of the shell; while the broad outline of the head reaches the first suture or the noded shoulder of the body whorl. The features are carved upon the convex surface. In the simpler forms the nose is represented by a low vertical ridge, no other features being indicated. Others have rings or perforations for eyes and rude indentations for the mouth, while the more elaborate examples have a variety of lines cut upon the cheeks or chin.

Fig. 6 represents a specimen from the Brakebill Mound, East Tennessee. The mouth is not indicated and the nose is but slightly

* Detailed descriptions of these objects will be given in the Second Annual Report of the Bureau of Ethnology.

relieved. Each eye, however, is inclosed by a figure which extends downward over the cheek, terminating in three sharp points.



FIG. 6.

Mask-like shell ornament from East Tennessee.

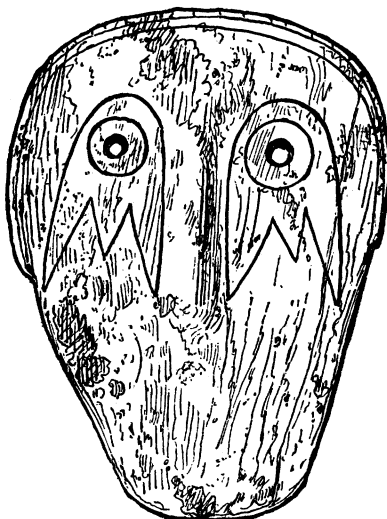


FIG. 7.

Mask-like shell ornament from Virginia.

Fig. 7 represents a fine example of these objects said to have been obtained on Acquia Creek, Va. It is unusually well preserved and is five and one-half inches in length by five in width. The outline is somewhat rectangular, the upper margin being pretty well rounded, and ornamented with a corona of incised lines, which are arranged in six groups of four each. Inside of these a single incised line runs parallel with the edge from temple to temple. The eyes are represented by circles with small central pits, and the lids, by long, pointed ellipses. From each of the eyes a group of three zigzag lines extends downward over the cheek, terminating near the edge of the plate opposite the mouth. The nose is represented by a flat ridge, which terminates abruptly below, the nostrils being indicated by two small excavations. In regard to the peculiar lines engraved upon these faces, I would suggest that, if they are burial masks, the zigzag lines from the eyes may stand for tears, but I incline to the opinion rather that they are delineations of the tattooing or painting of the clan to which the deceased belonged. It is probable that these objects were further embellished by painted designs.

These gorgets are especially numerous in the mounds of Tennessee, but their range is quite wide, examples having been reported from Kentucky, Virginia, Illinois, Missouri and Arkansas, and smaller ones of somewhat different types from New York and Louisiana. In size they range from two to ten inches in length, the width being considerably less. They are generally found associated with human remains in such a way as to suggest their use as ornaments for the head or neck. There are, however, no holes for suspension, except those made to represent the eyes; and these, so far as I have observed, show no abrasion by a cord of suspension.

The Human Figure.—I now come to a class of relics which are new and unique, and in more than one respect are the most important objects of aboriginal art yet found within the limits of the United States. Of these I shall describe four which come from that part of the mound-building district occupied at one time by the "stone-grave" peoples—three from Tennessee and one from Missouri. Similar designs are not found on other materials, and, indeed, nothing at all resembling them exists, so far as I know, either in stone or in clay. If such were painted or engraved on less enduring materials they are totally destroyed.

Fig. 8 represents a gorget on which is engraved a rather rude delineation of a human figure. The design occupies the concave side of a large shell disk cut from a *Busycon perversum*. Near the upper margin are the usual holes for suspension. The engraved

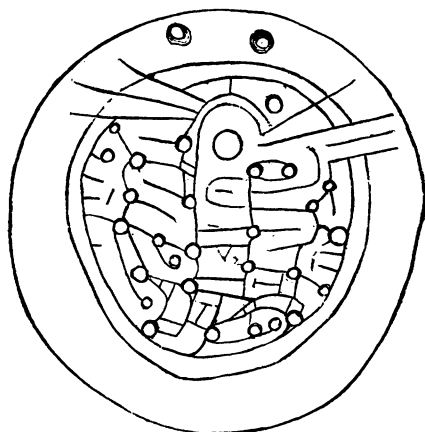


FIG. 8.

Shell gorget with rude human figure, from a mound at Sevierville, Tennessee.

design fills the central portion of the plate, and is inclosed by two approximately parallel lines, between which and the edge of the shell there is an annular space three-fourths of an inch wide. A casual observer would probably not recognize any design whatever in the jumble of half obliterated lines that occupies the inclosed space. It will first be noticed that a column about three-fourths of an inch in width stands erect in the center of the picture. From this spring a number of lines forming serpentine arms, which give the figure as much the appearance of an octopus crowded into a collector's alcohol jar as of a human creature. A little study will enable one, however, to recognize in the central column the human body, and in the tangle of lines surrounding it, the arms, legs, hands, feet, and their appendages—no line within the border being without its office. The upper extremity of the body is occupied by a circle one-eighth of an inch in diameter, which represents the eye. The head is not distinguished from the body by any sort of constriction for the neck, but has evidently been

crowned by a rude aurora-like crest similar to that found in so many aboriginal designs. The mouth is barely suggested by three shallow lines placed so low on the trunk that they occupy what should be the chest. From the side of the head a number of lines, probably meant for plumes, extend across the bordering lines almost to the edge of the shell. Below these are two perforated loops, which seem to take the place of ears; the one on the right is doubly perforated and has a peculiar extension, in a bent or elbowed line, across the border. The arms are attached to the sides of the body near the middle in a haphazard sort of way and are curiously double jointed; they terminate, however, in well-defined hands against the right and left borders, the thumb and fingers being, in each case, distinctly shown. The legs and feet are at first exceedingly hard to make out, but when once traced are as clear as need be. The body terminates abruptly below within an inch of the base of the inclosed space. One leg extends directly downward, the foot resting upon the border line; the other extends backward from the base of the trunk and rests against the border line at the right; the legs have identical markings, which probably represent the costume. Each foot terminates in a single well-defined talon or claw, which folds upward against the knee. This is a most interesting feature, and one which this design possesses in common with the three other drawings of the human figure found in Tennessee. The spaces between the various members of the figure are filled in with ornamental appendages, which seem to be attached to the hands and feet, and probably represent plumes. The numerous perforations in this specimen are worthy of attention: within the border line there are twenty-six, which vary from one-fourth to one-sixteenth of an inch in diameter. They are placed mostly at the joints of the figure or at the junction of two or more lines. Such perforations are of frequent occurrence in this class of gorgets, and may have had some particular significance to their possessors. This specimen was found in the great mound at Sevierville, Tenn., upon the breast of a skeleton, and is now in the National Collection. It has suffered considerably from decay, the surface being deeply furrowed, pitted, and discolored. The holes are much enlarged and the lines in places are almost obliterated.

I began the study of this design with the thought that, in reference to this specimen at least, Professor Jones was right, and that the confused group of lines might be the meaningless product of an

idle fancy, but ended by being fully satisfied that no single line or mark is without its place or its significance.

After having examined this design so critically it will be an easy matter to interpret that engraved upon the tablet illustrated in Fig. 9.

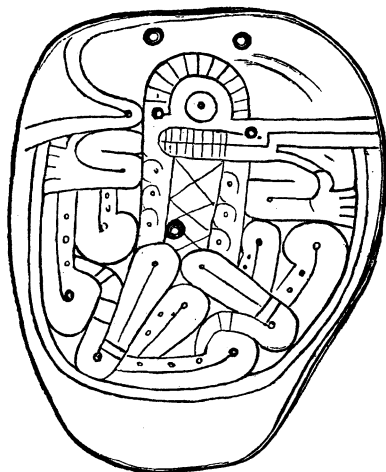


FIG. 9.

Shell gorget with human figure, from a mound, Meigs county, Tennessee.

Although found in widely separated localities and engraved in a somewhat different style they are identical in type, and exhibit but slight differences in detail. At the top of the plate we have the two doubly conical perforations for suspension, but the double border line is not completed above, being interrupted by the plumes from the head. The head itself is decorated with the usual crown of radiating lines, a small circle with a central pit represents the eye, and below this is a well-defined mouth with a double row of teeth. Extending to the right from the mouth is an appendage consisting of one straight and two interrupted lines, which may be a part of the costume, or, since it issues from the mouth, may possibly symbolize speech. The body, which is short and straight, is divided vertically into three parts; the central space contains a large conical perforation, and is covered with a lace-work of lines; the lateral spaces are ornamented with rows of buttons or scales,

which consist of meagerly outlined circles with central dots. The curiously folded arms have precisely the same relative positions as the corresponding members in the other specimen, and the fingers touch the bordering line on the right and left, the thumb being turned backward against the elbow. The legs are represented in a manner that suggests a sitting posture, the rounded knees coming in front of and joining the base of the body; in position and decoration they repeat the other specimen. The feet, or the rounded extremities that represent them, rest upon the border lines, as in the case previously described, and terminate in upturned talons that are long, curved, and jointed, and have square or blunt tips. Plume-like appendages are attached to the arms and legs, and fill the spaces not occupied by the members of the body; these plumes or pendants are always represented by folded bands or fillets which are ornamented on one side with dots. A plume attached to the left side of the head is represented by two curved lines, which reach to the edge of the shell. There are five perforations, two for suspension, two at the sides of the face, and one near the middle of the trunk. This specimen is in a very perfect state of preservation, the surface being smooth and but little stained. It is somewhat pear-shaped, resembling in this respect the mask-like gorgets previously described. It is about seven inches in height and five in width, and has been made from a very thick and compact shell—probably a *Busycon*. It was obtained from a mound in Meigs county, Tennessee, and is preserved in the Peabody Museum. In mechanical execution this specimen is much superior to the preceding one; the edges and surface of the shell are nicely dressed, although the lines of the design are indifferently cut.

Another unique shell gorget is presented in Fig. 10. It was obtained from a mound in Southeastern Missouri, and is now in the possession of Professor Potter, of St. Louis. The disk is about four and a half inches in diameter, and was originally nearly circular, but the edges are now much decayed and battered. A cut with a brief description is given by Mr. A. J. Conant in his recent work "Footprints of Vanished Races," page 95. My cut is made from a photograph obtained from Professor Putnam, of the Peabody Museum. This is probably the same photograph used by Mr. Conant. The engraved design is of a totally distinct type from the last, and evinces a much higher grade of skill in the artist. It is encircled by six nearly parallel lines, which occupy about half an

inch of the border of the disk. Portions of these still remain, the inner one being nearly perfect. Between this and the second line are two perforations for suspension. The idea first suggested by a glance at the engraved design is that it strongly resembles the work of the ancient Mexicans, and the second idea of many archæologists will probably be that there may be a doubt of its genuineness. Setting this question aside for the present, let us examine the engraving in detail. Placing the plate so that the two



FIG. 10.

Shell gorget with human figure, from a mound in Southeast Missouri.

perforations are at the left we have the principal figure in an upright posture. This figure apparently represents a personage of some importance, as he is decked from head to foot with a profusion of ornaments and symbols. He is shown in profile with the arms extended in action and the feet separated as if in the act of stepping forward. The head is large, occupying about one-third of the height of the design. The elaborate head-dress fills the upper part of the inclosed space, pendant plumes descend to the shoulders before and behind, and circular ornaments are attached to the hair and the ear. The conventionalized eye is lozenge or diamond shaped, with a small conical pit for the pupil.

The profile shows a full forehead, a strong nose, and a promi-

ment chin. Two lines extend across the cheek from the bridge of the nose to the base of the ear. In and projecting from the mouth is a symbolic figure, the meaning of which can only be conjectured. The shoulders and body are but meagerly represented. From the waist a peculiar apron-like object is suspended, which reaches to the knees. The legs and feet are dwarfed, but quite well outlined. There are encircling bands at the knee and ankles, and a fan-like extension of the costume, somewhat resembling the tail of a bird, descends between the legs. Attached to the back, behind, is a figure of a rather extraordinary character. It is not unlike the contrivance seen upon the backs of some of the figures in Mexican paintings for carrying burdens, and in which, at times, elfish figures are accommodated. The right arm is extended forward, and the hand grasps a singular shaft, with which a blow is aimed at the severed head of the victim, which is held face downward by the left hand of the standing figure. The severed head still retains the plumed cap, from which a long pendant descends in front of the face. The eye is lozenge-shaped. A zigzag line crosses the cheek from the ear to the bridge of the nose, and a curious symbolic figure is represented as issuing from the mouth. The shaft held in the right hand seems to issue from a circular figure, doubtless of symbolic character, which occupies the space in front of the head of the standing figure. It is possible that the figure which issues from the mouth of the victim represents the point of this mystic shaft which has penetrated the head, although we should have to allow some inaccuracies in the drawing if this were the case. Any one at all familiar with the curious pictographic manuscripts of the ancient Mexicans will see at a glance that we have here a sacrificial scene, in which an officiating priest is engaged in the immolation of a human being. In the extraordinary manuscripts of the ancient Aztecs we have many parallels to this design. So closely does it approach the Aztec type that, although no duplicate can be found in any of the codices, there is not a single idea, a single member or ornament, that has not its analogue in the Mexican manuscripts. Fortunately for the credit of this Missouri relic there are no duplicates—there are only family resemblances; there are similar plumes, with similar ornaments and pendants; there are similar costume and attitudes; there are similar features and symbols: but there is no absolute identity, except in motive and conception.

Among the multitude of works of art collected within the last decade, very few will be found to surpass in interest the fragment of a shell gorget from the McMahon Mound, at Sevierville, Tenn. (Fig. 11.) The disk, when entire, was nearly five inches in diam-



FIG. 11.

Shell gorget with fighting figures, from a mound at Sevierville, Tennessee.

eter. A little more than one-third had crumbled away, and the remaining portion was preserved only by the most careful handling and by immediate immersion in a thin solution of glue. This specimen is the first of the kind ever brought to light in this country, and must certainly be regarded as the best example of aboriginal art ever found north of Mexico. The design, as in the other cases, is engraved on the convex surface of a polished shell disk, and represents two human figures, plumed and winged, with eagles' talons for feet, and engaged in mortal combat. As in the last specimen described, this has at first sight an exotic look, bearing certainly in its conception a general resemblance to the marvelous bas-reliefs of Mexico and Central America; but the resemblance goes no further, and we are at liberty to consider it a northern work *sui generis*. The design has apparently covered the entire tablet, leaving no space for encircling lines. The two figures are in profile, and face each other in a fierce onset. Of the right-hand figure only the body, one arm, and one leg remain, the dotted lines in the cut indicating the parts restored. The left-hand figure is almost

complete, the outline of the face, one arm, and one foot being obliterated. The right hand is raised above the head in the act of brandishing a long double-pointed knife. At the same time this doughty warrior seems to be receiving a blow in the face from the right hand of the other combatant, in which is clutched a savage-looking blade with a curved point. The hands are vigorously drawn, the joints are correctly placed, and the thumb presses down upon the outside of the forefinger in its natural effort to tighten and secure the grasp. Two bands encircle the wrists and probably represent bracelets. The arms and shoulders are plain. The head is decorated with a single plume, which springs from a circular ornament placed over the ear. An angular figure extends forward from the base of this plume, probably the remnant of the head-dress proper. Forward of this, on the very edge of the crumbling shell, is one-half of the lozenge-shaped eye, the dot intended to represent the pupil being almost obliterated. It is a misfortune that both faces are gone; their exact character must remain conjectural. A neat ornament is suspended upon the well-formed breast, and a broad belt encircles the waist, beneath which, covering the abdomen, is a design that suggests the scales of a coat of mail. The legs are well-defined and perfectly proportioned; the left knee is bent forward, and the foot is planted firmly on the ground, while the right is thrown gracefully back against the rim at the left. Double bands encircle the knees and ankles. The legs terminate in well-drawn eagles' feet, armed with vigorously curved talons. A very interesting feature of the design is the highly conventionalized wing, which is attached to the shoulder behind, and fills the space beneath the uplifted arm. A broad, many-feathered tail is spread out like a fan behind the legs. The right-hand figure, so far as seen, is an exact duplicate of the left. Between the figures a design of undetermined significance occupies the space beneath the crossed arms; it may represent drapery, but is more probably symbolic in its character. The heads were probably a little too large for good proportion, but the details of the anatomy are excellent. The muscles of the shoulder, the breast and nipple, the waist, the buttock, and the calves of the legs are in excellent drawing. The whole group is most graphically presented. A highly ideal design, it is made to fill a given space with a directness of execution and a unity of conception that is truly surprising.

Let us turn for a moment from this striking effort of the mound-

builders to the early efforts of other peoples in the engraver's art. Look at the drawings of the Troglodytes of France, scintillations of palæolithic genius which appear as a flash of light in the midst of a midnight sky. They are truly remarkable. The clear-cut lines that shadow forth the hairy mammoth suggest the graphic and forcible work of the Parisian of to-day. The rude Esquimaux of our own time engrave images of a great variety of natural objects on their ornaments and implements of ivory in a manner that commands our admiration. But these shell tablets have designs of a much higher grade. They not only represent natural objects with precision, but they delineate conceptions of mythical creatures of composite character for which nature affords no model. In execution the best of these tablets will not compare with the wonderful works in stucco and stone of Palenque, or the elaborate sculptures of the Aztecs; but they are, like them, vigorous in action and complete in conception.

And now we come to the question of the origin of these objects, and especially of the specimen most closely resembling Mexican work. The Conant gorget is in many respects quite isolated from all others hitherto found in the Mississippi Valley. Must it be regarded as an exotic, as an importation from the South, or does it belong to the soil from which it was exhumed? In order to answer this question we must not only determine its relations to the art of Mexico, but we must know just what affinities it has to the art of the mound-builders.

In the first place, gorgets of shell are a marked characteristic of the personal embellishment of the northern peoples. They may have been in use among the Aztecs, but do not appear among southern antiquities, and no evidence can be derived from history. This gorget belongs, in its general character as an ornament, to the North. It is circular in form, it has two small perforations near the margin for suspension, and is made from the wall of a large univalve. The design occupies the central portion of the convex side of the disk, and is inclosed by a number of incised lines. In all of these features, together with its technical execution and its manner of inhumation, it is identical with the well-known work of the mound-builders. These analogies could hardly occur, if it were an exotic.

It is true, however, as we have already seen, that the design itself has a closer affinity to Mexican art than to that of the North.

It represents a sacrificial scene, and has many parallels in the paintings and sculpture of the South, whereas no such design is known in the art of any nation north of Mexico. The engravings of the mound-builders represent legendary creatures derived from the myths of the fathers, and in this respect have their parallels in the bird-man of the Haidahs, the war-god of the Zuñis, and the mythical deities of other countries; but they are never illustrative of the customs or ceremonies of the peoples themselves. As an ornament this Missouri gorget is a member of a great family that is peculiarly northern, but the design engraved upon it affiliates with the art of Mexico. So close and striking are the resemblances, that accident cannot account for them, and we are forced to the conclusion that it must be the offspring of the same beliefs and customs and the same culture as the art of Mexico.

DISCUSSION.

Prof. MASON called attention to the striking similarity between the figures on the shell ornament shown in Fig. 10 and one of the bas-reliefs found in Guatemala by Habel.

President MALLERY remarked that, during his examinations of the copies of the Dakota Calendar first seen by him, he was induced to believe that there had been an attempt to be precise in the details, which, on examination of other copies, proved not to be the case. In some of the charts, the characters are drawn from a central position spirally from right to left to the outer margin of the material upon which they are depicted; in others, the spiral runs from left to right; while upon others, the symbols are drawn in serpentine curves or in straight lines. There were also variations in the several figures, though the idea expressed was always the same for the characters in corresponding order. The fact that, in the many copies of the scalloped disk exhibited by Mr. Holmes, the characters were absolutely identical, tended to show that they were not ordinary pictographs nor ideographs, which would admit of variations of execution, but that they formed a conventional design—perhaps, as suggested, a time-symbol, not admitting of any variants.

Dr. J. H. PORTER then read a paper on “CANNIBALISM.”

ABSTRACT.

Cannibalism was probably at certain periods of development as

general as it is now exceptional. Existing as a custom, the practice exhibits itself under several distinct forms. How it became customary, that is to say, the question of primordialism, is waived, because an essential factor in the investigation, that relating to primitive ideas, could not be examined. Existing customs, however, are believed to be explicable according to the principles of sociological science. Cannibalism appears in several distinct forms, which are not necessarily successive stages of development, but which, starting from custom, have evolved into ceremonial observances of different orders. The unlimited anthropophagism of several districts of Africa is, so far as accessible evidence goes, determined neither by necessity, by fetichistic notions, nor by warlike or religious rites. It is not prevalent among the more degraded peoples, nor is it found in isolated and relatively undeveloped communities. Its continuance in societies among whom, in general, the practice is abhorred, and in a race exhibiting very great diversities of character and propensity towards variation, must be due to some cause sufficiently powerful to counterbalance the tendency to change involved in the conditions under which anthropophagy exists. This cause was assumed to be Fashion, and the hypothesis was shown to be conformable with the requirements of a *vera causa*, from the facts attaching to savagery at large, and from the *ensemble* of the negro's mental constitution. It was stated that the construction of a theory formed no part of the intention of the paper, which was merely a tentative towards the explanation of a social phenomenon that did not admit of explanation, either as a morbid appetite, however acquired, or as a superstitious rite or ceremonial observance of any other kind. The explanation suggested for its persistence was considered by the author to be sufficiently valid, from a scientific point of view, to justify the adoption of the hypothesis of Fashion as the cause of that particular form of cannibalism indicated.

DISCUSSION.

Dr. MORGAN stated that although the paper just read referred to African tribes, he desired to ask whether the North American Indians were ever known to have been cannibals.

President MALLERY replied that there were numerous instances on record, but thought that, if it occurred, the custom was referable to ritualistic observances.

Mr. HENSHAW, being called upon to state whether he had met with many instances of cannibalism in works on the North American Indians, replied that he had found no well authenticated cases.

Dr. MORGAN said he remembered reading in a history of Maryland (Alsop's) that the Susquehannocks were cannibals, and devoured victims.

Dr. FLETCHER called attention to a probably general prevalence of cannibalism at one time, and suggested that it might appropriately be considered as a fashion, or, perhaps, sheer love of good eating—epicurean cannibalism.

Colonel SEELY referred to the death of a notorious criminal in the south of Europe, who, in addition to other numerous crimes, had been found guilty of cannibalism, and who had remarked that human flesh was certainly sweet. This case might come under the same form spoken of by Dr. Fletcher, as illustrating a decided love of human flesh.

Mr. GILBERT considered it rather as the survival of a once universal custom, so that the question would not be in reference to the origin of cannibalism, but to the origin of the aversion to it.

President MALLERY said that the best authorities, or those upon whom we can place most reliance, do not refer to general anthropophagism, but state that certain pieces of the body or the heart are eaten, with the belief that the martial attributes of the victim are thus acquired by the one who partakes.

Mr. GATSCHET stated that the southern Oregonians took the heart out of the slain, and ate it for the purpose of obtaining the valor and fighting propensities of the victim. He suggested that, as many tribes arranged their hunts by forming a large circle and gradually concentrating so as to drive the game together, that it might more readily be killed, and as wars were considered "big hunts" only, so enemies were driven in a similar manner to one point, and the proceeds of the hunt eaten like game. The speaker further remarked that none of the southern tribes east of the Mississippi river, as the Cherokee, Cha'ta-Maskoki, and Timucua, and none of the eastern Algonkins and Panis had ever been charged with being cannibals. It is a mistake to judge Indian customs from our half moral, half sentimental point of view, since many customs are quite natural to Indian psychology which are repugnant to our feelings.

STONE IMPLEMENTS FROM NORTHWESTERN INDIA.

The following communication was received from Mr. Rivett-Carnac, Ghazipur, India, with a collection of stone implements from northwestern India:

During the past few years, Mr. J. Cockburn and myself have been fortunate enough to find stone implements in large quantities in Banda, a hilly district in the northwestern provinces of India. These implements consist chiefly of stone axes, or celts, of types well known in Europe. We have also found stone-hammers, ring-stones, and a variety of other implements, some of cosmopolitan types, and others unique.

The celts found are upwards of 400 in number and are of two distinct types, polished and chipped, the former of diorite, and the latter of basalt.

We are of opinion that both types were in use at the same time. Implements of true palæolithic types, made of quartzite, occur scantily in the Banda district, but are more numerous further south.

The celts vary from $12\frac{1}{2}$ inches in length and 8 lbs. 3 oz. in weight, to $2\frac{1}{2}$ inches in length and $3\frac{3}{4}$ oz. in weight.

The unique specimens of hammers, etc., and the largest and most remarkable of the celts have been presented by me to the British Museum. Sir P. Cunliffe-Owen, the well-known Director of the Kensington Museum, has, however, been good enough to cast the best specimens, and I hope later to send a complete series of colored fac-similes for your acceptance.

In the meantime, groups representing the classes of celts found have been made up for presentation to the principal museums and scientific societies of Europe and the United States, and I do myself the honor of intimating that a case containing celts, etc., has been sent to your address, in the hope that they may be considered of sufficient interest to find a place in your museum.

A few more specimens of spalls, or waste chips, flakes, and cores may be of value for comparison with similar objects from other countries. The chert was procured in nodules and bands in the Tirhowan limestone; the agate, from the beds of streams which cut through the Rewah conglomerate, south of Banda.

A larger collection of chert implements than any formerly made in India has been brought together by Mr. Cockburn, who will describe them more fully hereafter. The ethnic affinities of the collec-

tion are, he points out, curious. On one hand, the scrapers and knives are of European types, as are also the mass of the celts. Then there are certain types which clearly resemble Silices, hitherto only found in Egypt by Jukes Brown.*

A third type, apparently not common elsewhere (he designates them saw-backed knives) has recently been found in the Island of Melos. The coarser stone knives of quartz, sandstone, and basalt are not far removed from those used by the modern Australian savages.

The arrow-heads, as far as can be judged, come nearer the multitudinous American forms than any other; but the resemblance may rather be due to the comparatively large number of these implements which are known from America, and their comparative rarity in other countries. Some of the chert implements are of recent origin, and we have come to the conclusion that stone implements were probably in general use among the Kolairian, or Dravidian aborigines of this part of Bundelkhund, about 500 B. C., and that the use of stone among these people was not quite abandoned as late as 600 A. D.

A piece of sculpture representing an aboriginal armed with a stone axe, recently discovered at Kalinjar, is assigned to the seventh century after Christ. How far antecedent the use of stone may have been in this part of the country, no one will venture to guess, in the present state of our knowledge; but the majority of the implements have been found on the borders of the great Gangetic alluvial plain, itself of no great antiquity.

The alluvium in this part of Bundelkhund is largely made up of decomposed basaltic rocks, which crop up here and there to the very margin of the Jumna. No doubt this river has had much to do with the level and adjustment of this alluvium.

Some of the chert implements which are much weathered are, no doubt, of vast antiquity; but the evidence, so far as it has been sifted, is in favor of the theory that the people corresponding to the palæolithic men of Europe used excessively rude implements of jasper, quartzite, and basalt, rather than of chert, which was by no means abundant.

SIXTY-EIGHTH REGULAR MEETING, April 3d, 1883.

Colonel GARRICK MALLERY, President, in the chair.

* Journal of the Anthropological Institute, Gr. Brit., Vol. VII.